

AMENDMENTS to the SPECIFICATION

Please amend the ABSTRACT to read as follows:

A processor which cooperates with directory server handles servers to handle requests for values of dynamic attributes by providing at least one declaration for an attribute to be handled as a real-time attribute associated with but external to a directory structure; receiving a directory access protocol request for access to an attribute value from the associated directory structure; detecting requested access to an attribute declared as a real-time external attribute; resolving a real-time value by obtaining an attribute value from a real-time source external to the directory structure; converting the obtained attribute value from a real-time attribute to a static attribute, wherein the real-time attribute is incompatible with the directory access protocol, and wherein the static attribute is compatible with the directory access protocol; and returning to a requester the converted real-time attribute directly in the directory access protocol, wherein storing and updating of the converted real-time attribute value in the directory structure is eliminated or avoided, which would otherwise present a real-time processing challenge to the directory server due to the server's dependence on the data normally being static in nature. Special schema syntax identifiers are used to identify dynamic attributes which then are not stored directly in the directory, but whose values are resolved at the time a read request is made for those attributes. This approach eliminates the need to store the dynamic information in the directory, and allows user supplied modules to perform the resolution of the dynamic attributes in a real-time manner, including not only retrieving a value from a dynamic data source, but optionally performing calculations or manipulations on the data as well. One embodiment of the invention cooperates with Lightweight Directory Access Protocol ("LDAP") directory servers.

Please amend the SUMMARY OF THE INVENTION, paragraph 0064 as numbered in the pre-grant publication of the application, to read as follows:

[0064] Our Real-time Attribute Processor ("RTAP") functionally cooperates with directory servers to handle requests for dynamic attributes by providing at least one declaration for an attribute to be handled as a real-time attribute associated with but external to a directory structure; receiving a directory access protocol request for access to an attribute value from the associated directory structure; detecting requested access to an attribute declared as a real-time external attribute; resolving a real-time value by obtaining an attribute value from a real-time source external to the directory structure; converting the obtained attribute value from a real-time attribute to a static attribute, wherein the real-time attribute is incompatible with the directory access protocol, and wherein the static attribute is compatible with the directory access protocol; and returning to a requester the converted real-time attribute directly in the directory access protocol, wherein storing and updating of the converted real-time attribute value in the directory structure is eliminated or avoided which would otherwise present a real-time processing challenge to the directory server due to the server's dependence on the data normally being static in nature. Special schema syntax identifiers provided by the invention are used to identify attributes which are to be handled as real-time attributes, and which are not to be stored directly in the directory, but whose values are resolved at the time a read request is made for those attributes. This approach eliminates the need to store the dynamic information in the directory, and allows user supplied modules to perform the resolution of the dynamic attributes in a real-time manner, including not only retrieving a value from a dynamic data source (e.g. a stock ticker), but optionally performing calculations or manipulations on the data as well (e.g. calculating a price-to-earnings ratio, watermarking an image, etc.). One preferred embodiment of the invention adheres to LDAP standards and protocols.